5.5 Tier 2 Evaluation

In a Tier 2 evaluation, IWEM analyzes available site-specific data to develop liner recommendations that are more tailored to your site conditions than the national, screening-level Tier 1 evaluations. This section of the *User's Guide* describes the Tier 2 input and results screens.

The main Tier 2 Input screen group (Figure 5.23) consists of the following screens and dialog boxes:

- WMU Type (16)
- WMU Parameters (17)
- Subsurface Parameters (18)
- Infiltration (19)
  - Climate Center List (19a)
- Constituent List (20)
  - Enter New Constituent Data (20a)
  - Add New Constituent (20b)
  - Add New Data Source (20d)
- Constituent Properties (21)
- Toxicity Standards (22)
- Input Summary (23)

After you complete the Tier 2 data inputs, IWEM will begin the Tier 2 analysis.

The Tier 2 Evaluation Run Manager (24) screen is displayed during the Tier 2 analysis. Depending upon the model inputs and the speed of your PC, a Tier 2 analysis may take anywhere from several minutes to several hours to complete.

The Tier 2 results are then presented on the Summary Results (25) screen. The Detailed Results screen for the Tier 2 Evaluation varies according to the option you chose for the infiltration rate. When using an IWEM-generated **location-based estimate of infiltration**, the Detailed Results screen for Tier 2 consists of either three screens (for landfills, surface impoundments, and waste piles) or one screen (for LAUs):

- Results – No Liner (26)
- Results – Single Clay Liner (27)
- Results – Composite Liner (28)

When using a **user-specified infiltration rate**, the Detailed Results screen for Tier 2 consists of only a single screen:

- User-Defined Liner Results (28)

The overall Tier 2 result is then displayed on the Tier 2 Evaluation Summary (29).

The available options and data displayed on each of these screens and dialog boxes are explained in the following sections.

5.5.1 Tier 2 Input Screen Group

If you begin with the Tier 1 Evaluation and choose to proceed to the Tier 2 Evaluation with the same selected constituents, then the WMU type, list of waste constituents, and the expected leachate concentrations specified in Tier 1 are automatically transferred to Tier 2. These values can also be edited in Tier 2, if desired.

5.5.1.1 Tier 2 Input: Waste Management Unit Type (16)

The first screen of the Tier 2 Input screen group, WMU Type (16), is identical to the Tier 1 WMU Type screen.

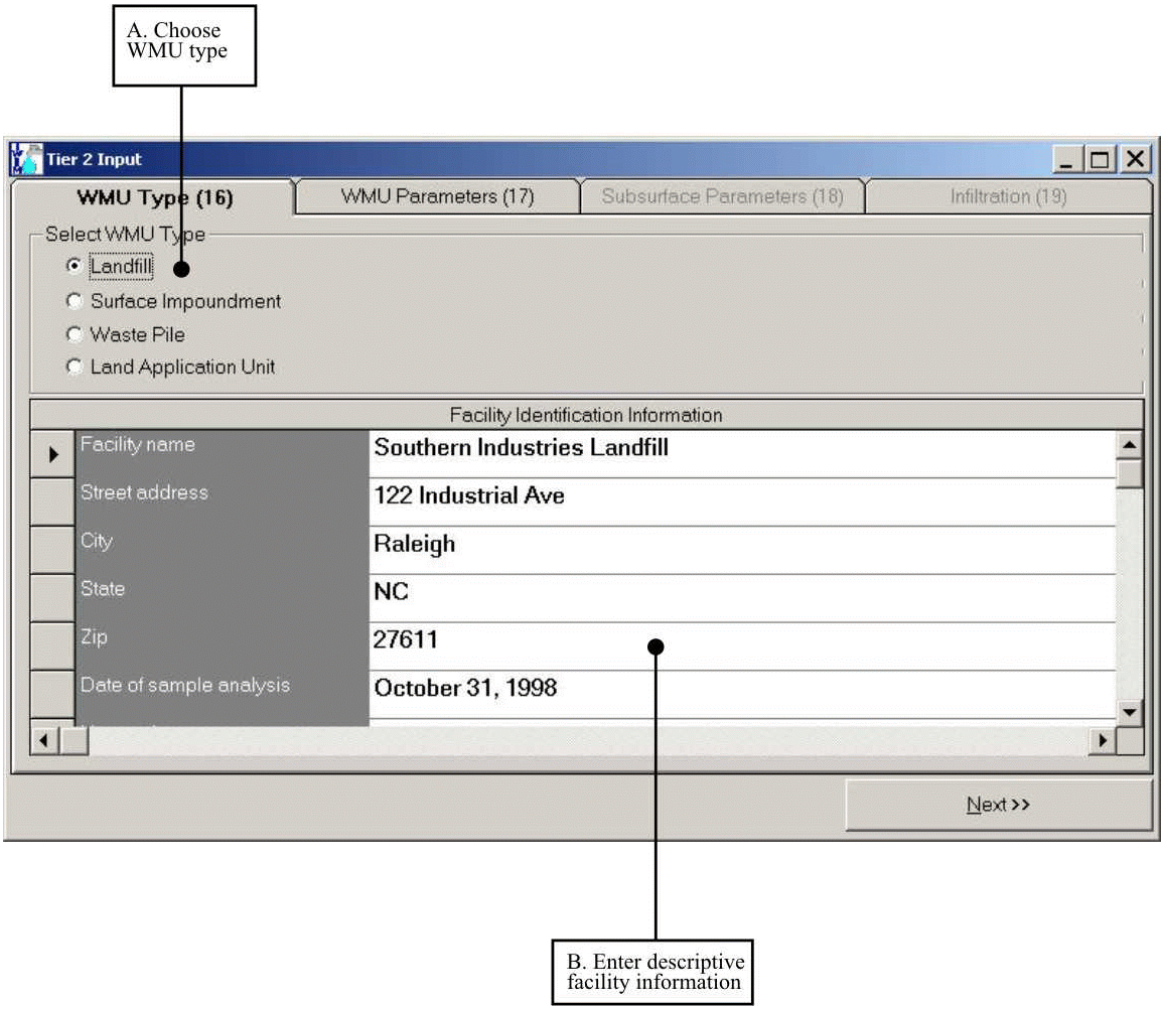

Figure 5.23 Tier 2 Input: WMU Type (16).

The features identified in Figure 5.23 are explained in more detail in the following paragraphs.

A. Choose WMU Type

First, select one of the following choices from the |SELECT WMU TYPE| option list by clicking on the appropriate radio button:

- Landfill
- Surface Impoundment
- Waste Pile
- Land Application Unit

B. Enter Descriptive Facility Information

In the text boxes located in the lower half of the screen, enter the following information about the WMU being evaluated:

- Facility name
- Address of the WMU (street, city, state, zip)
- Date of waste constituent analysis
- Your name (name of the person performing the liner evaluation)
- Any additional identifying information that you would like to include

All information entered in these text boxes will be included on the printed Tier 2 Evaluation Reports (and in the Tier 1 report, if these data were carried over from a previous Tier 1 analysis).

5.5.1.2 Tier 2 Input: WMU Parameters (17)

The Tier 2 evaluation uses site-specific WMU data to assess potential ground-water impacts. The WMU parameters are entered on the WMU Parameters (17) screen. A complete list of all WMU parameters is shown below, however, not all parameters are applicable for each WMU type. For instance, data on the WMU's operational life is used only for surface impoundments, waste piles, and LAUs. This parameter is not applicable to landfills. Some parameters are marked as (*required*). This means that you must provide a site-specific value for this parameter. If a parameter is not marked as (*required*), IWEM will use a site-specific value if you have it. If you do not have this data, IWEM gives you the option to select a default value, or distribution of values. These default values are generally the median values of the distributions of values used in Tier 1.

WMU Parameters:

- Area of the WMU *(required)*
- Distance to well
- Depth of WMU (LF only) *(required)*
- Ponding depth (SI only) *(required)*
- Operational life of WMU (WP, SI, and LAU only)
- Depth of WMU base below ground surface (LF, WP, and SI only)
- Sludge thickness (SI only)
- Distance to nearest surface water body (SI only)
- Brief explanation for each site-specific value *(required)*

For each type of WMU, the Tier 2 WMU screen looks slightly different, as shown below in Figures 5.24 through 5.27.

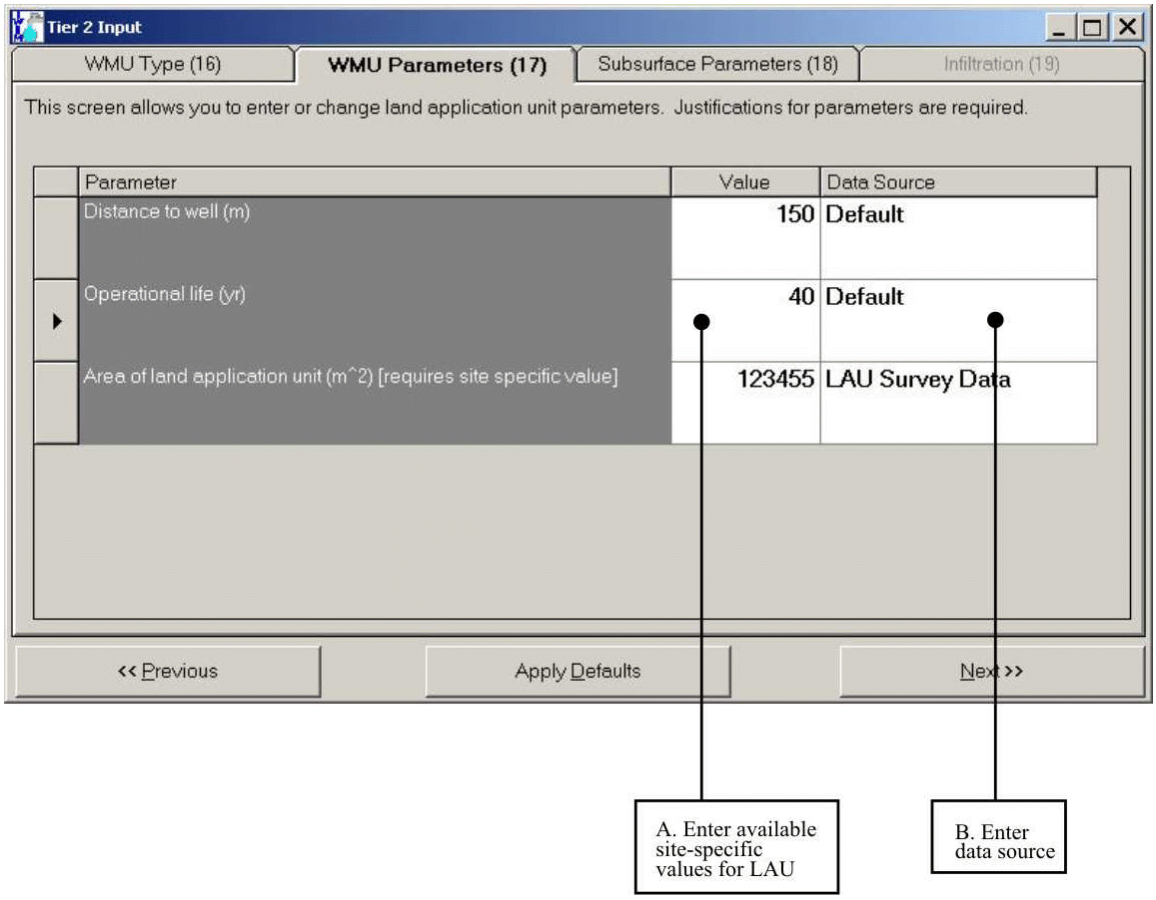

Figure 5.24 Tier 2 Input: WMU Parameters (17) for Land Application Units.

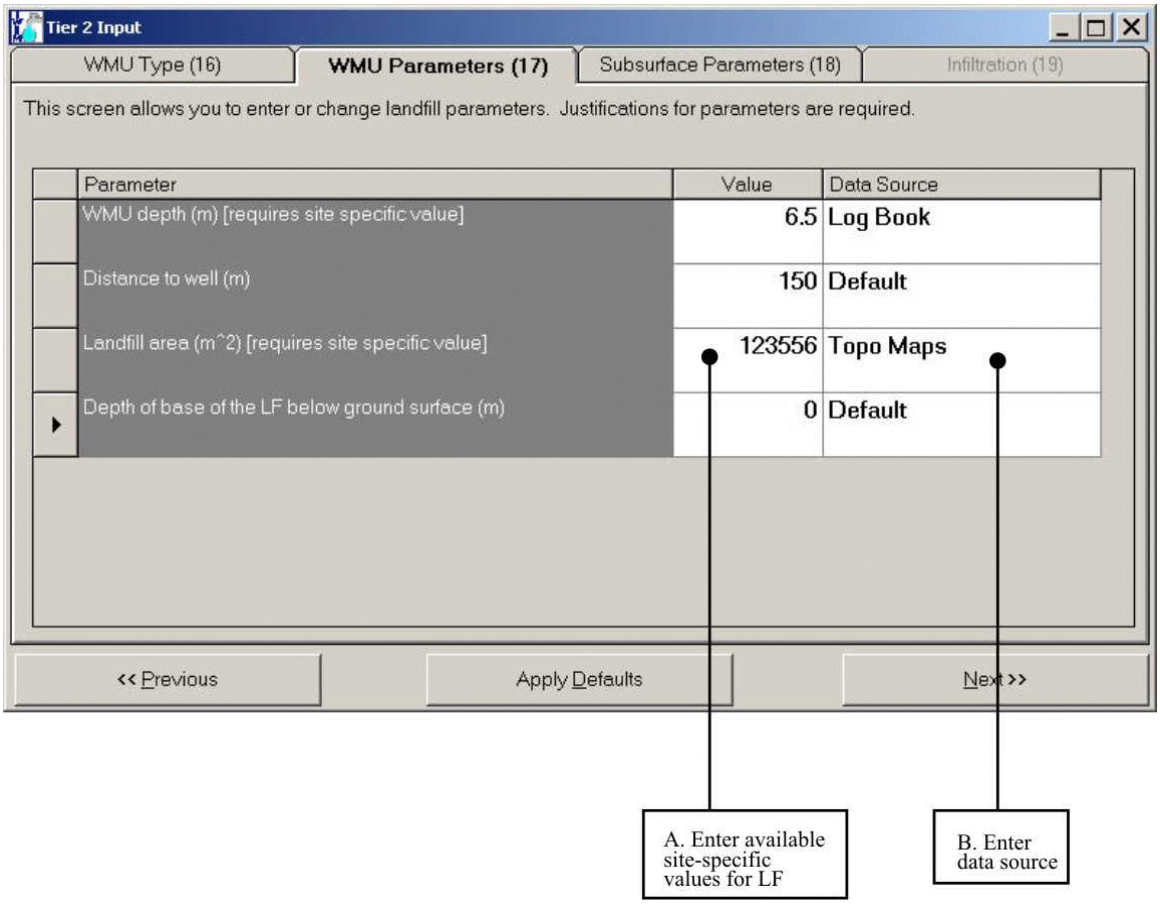

Figure 5.25 Tier 2 Input: WMU Parameters (17) for Landfills.

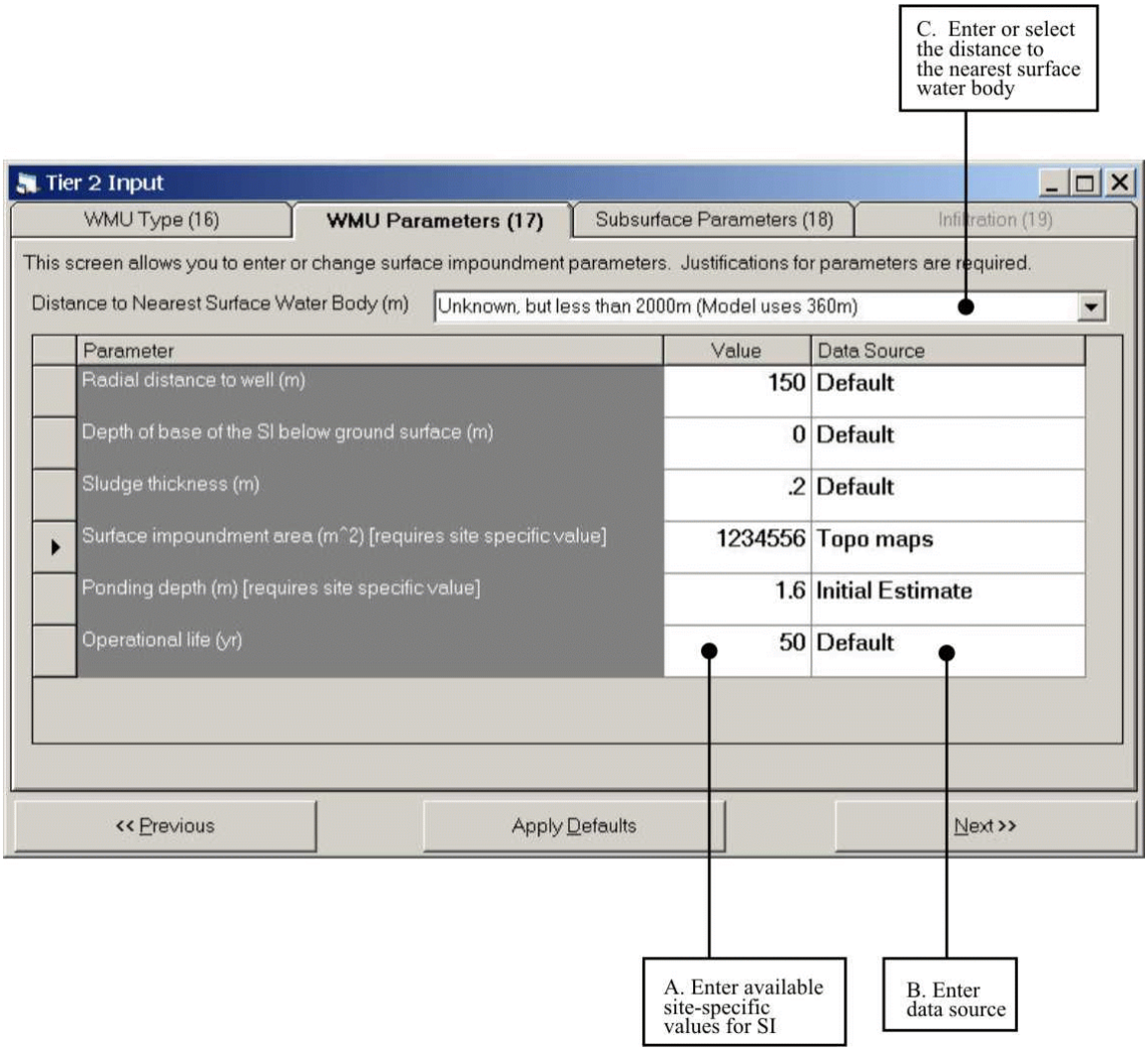

Figure 5.26 Tier 2 Input: WMU Parameters (17) for Surface Impoundments.

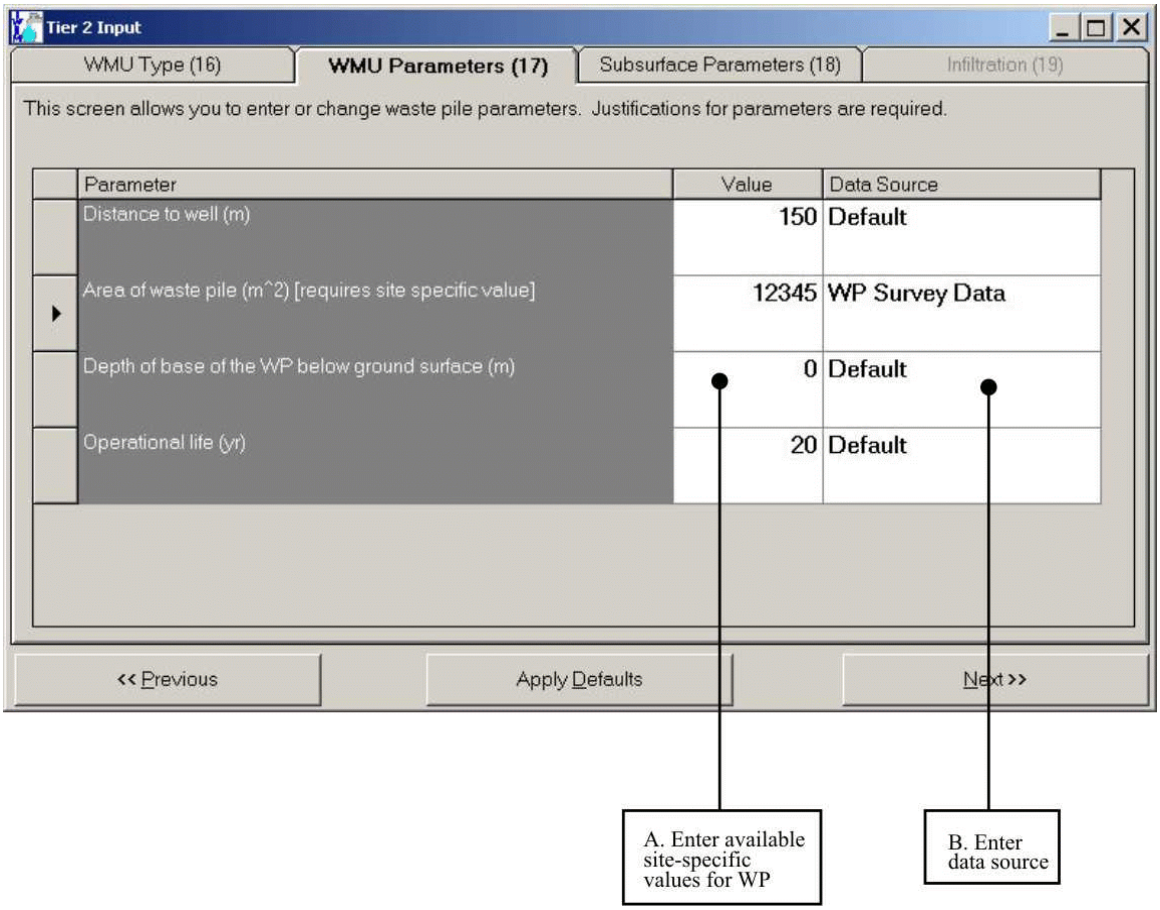

Figure 5.27 Tier 2 Input: WMU Parameters (17) for Waste Piles.

For all Tier 2 input parameters for which you enter site-specific values, remember to type in a brief justification or explanation of this value. This information is required and will be included in the printed report.

The features identified in Figure 5.24 through 5.27 are explained in more detail in the following paragraphs.